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Growth Prospects for Agricultural Production Sector in Moldova Republic

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Abstract

Moldova is one of the countries with significant potential in agriculture, one of the largest areas and farmland as a share of total land, 75% against the European average of 45%, but is among the last places in terms of view of efficiency of agricultural production and agricultural area. However, further development of Moldova is closely linked to the development of the agricultural sector. For this reason, the sector agrarian becomes a matter of national interest. The transformation of agriculture into year engine of economic growth is vital for the free movement of Moldova when agricultural products and the effects of globalization, competitiveness and efficiency will be sustainable key factors of economic growth of the agricultural sector. Ensuring medium and long-term performance of the agricultural sector requires the adoption of effective economic policy tools to allow management and the existing potential in agriculture, which increase agricultural output and sustainable development in the competitive environment. The importance of the researched subject growth prospects for agricultural production sector in Moldova Republic is particularly high, because the theme is subjected to a thorough scientific research, applying a range of methods economic-statistical is necessary to emphasize in this context a major issue is alternatives sector funding in terms of limited budget resources: the current needs of manufacturing activity or the creation and strengthening competitive agricultural growth assumptions.

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*Keywords:*agricultural area, competitiveness and efficiency, competitive environment, economic growth

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1. Introduction

Given that perpetuated, old tradition "in terms of economic performance", the results of agricultural producers in Moldova is very poor due to the following reasons (Dinu et al., 2015): -the existence of a weak and distorted competitive environment that contribute to poor development of competitive markets in agriculture;-inefficient operation of the functional system of services for farmers, especially in finance and banking;-deformed structure of agricultural enterprises in terms of production potential;-reduced possibilities of capital accumulation and reinvestment of needles motor itself;-inability of authorities to form an economic environment capable of transforming agriculture into an attractive area for investment capital, etc.

2. Materials and Methods

The results of the investigations were used the following methods: economic and statistical computing constructive and logical observation. Served as informational support National Bureau of Statistics data, financial reports of Ministry of Agriculture and Food Industry, Ministry of Finance. The methodological base have served multiple laws and regulations of the Republic of Moldova. The basic methods of research are analysis and synthesis method for comparing the relative sizes medium and method and interpretation of tabular and graphical data.

3. Results and Discussions

The forecast for 2022, issued by the OECD and FAO indicate that global demand for agricultural products is increasing especially due to emerging countries (Popa, 2015). Offer not evolve at the same pace with demand, but much slower. Next, we determine the trend in global agricultural production enterprises of all categories in Moldova during 2004-2014 by adjusting linear (Table 1):

$$\bar{Y} = a + bt \quad (1)$$

where: $a = \frac{\sum y}{n} = \frac{13,3610.5}{11} = 12,146.4$; $b = \frac{\sum ty}{\sum t^2} = \frac{17,749.24}{11} = 161.4$

so: $\bar{y}_t = 12,146.4 + 161.4\,t$

Table 1. The trend overall value of agricultural production in Moldova during 2004-2014 determined by linear adjusting method

Year	The value of global production (in comparable prices), lei million y	T	T * Y	T²	T = A + BT T = 12146.4 + 161.4 T
2004	12,301.3	- 5	- 61,506.5	25	11,339.9
2005	12,402.2	- 4	- 49,608.8	16	11,501
2006	12,266.7	- 3	- 36,800.1	9	11,662.35
2007	9,432.5	- 2	- 18,865	4	11,823.7
2008	1,2460.3	- 1	- 12,460.3	1	11,985.05
2009	11,259.5	0	0	0	12,146.4
2010	12,146.7	1	12,146.7	1	12,307.75
2011	12,757.8	2	25,515.6	4	12,469.1
2012	9,908.5	3	29,725.5	9	12,630.45
2013	13,772.81	4	55,091.24	16	12,791.8
2014	14,902.18	5	74,510.9	25	12,953.15
TOTAL	133,610.5	0	17,749.24	110	133,610.7

Source: Calculated by the author based NBS, Statistical Yearbook 2013 and operational information on the socio - economic development of Moldova

According analytical tool linear adjustment in the period 2004 - 2014 global production has tended average annual totals of 161.4 million lei. This spore production was generated primarily by higher volume of crop production, which in turn was driven by increased yields of most crops of wheat, corn, sunflower, sugar beet, etc., especially in the years 2013 and 2014. In support of this, we studied the dynamics of global agricultural output value for 2004 - 2014.

In the period 2004-2014, the value of global production in Moldova marked both increases and decreases. The maximum amount was fixed in 2014 Lei 14,902.18 Million. The entire period there is an average value of global production of about Lei 12,146.4 Million, with growth in production worth Lei 260.08 Million annually. We should mention that the dynamics Global production value during 2004-2014 grew at an average rate of 1.9% annual growth rate. This increase is due to expansion of wheat growing land and investments in agricultural machinery, fertilizers, herbicides, etc., that were made during this period [4].To demonstrate that global production shows a rising trend from year to year trend we calculate global agricultural output in the same period after adjustment using a parabola of second degree (Table 2).

The result is:

$$\bar{y}\ t = 11,263.8 + 161,4t + 76,49\ t^2,\ t = A + bt + ct^2 \quad (2)$$

In addition, these results show that in the period under review, global agricultural production shows a rising trend, expressed by positive parameter c = 76.49 Lei Million.According to data obtained using the criteria that mining development trend of global agricultural production to agricultural enterprises of all categories of Republic Moldova during 2004- 2014, according to the forecast trend is defined by the parable of the two.

Table 2. Dynamics of the value of global production in the period 2004-2014

Year	The value of global production (in comparable prices), lei million	The absolute growth, thousand tons		The growth rate,%		Gain pace, %		The significance of absolute percentage gain, thousand tones
		Δ with fixed base	Δ with the movable base	Δ with fixed base	Δ with the movable base	Δ with fixed base	Δ with the movable base	
2004	12,301.3	-	-	-	-	-	-	-
2005	12,402.2	100.9	100.9	100.8	100.8	0.82	0.82	12.3
2006	12,266.7	- 34.6	- 135.5	99.7	98.9	- 0.28	- 1.09	-
2007	9,432.5	- 2,868.8	- 2,834.2	76.7	76, 8	- 23.32	- 23.1	-
2008	12,460.3	159	3,027.8	101.3	132	1.29	32	9.46
2009	11,259.5	- 1,041.8	- 1,200.8	91.5	90.4	- 8.46	- 9.63	-
2010	12,146.7	- 154.6	887.2	98.7	107.9	- 1.25	7.87	11.27
2011	12,757.8	456.6	611.1	103.7	105	3.71	5.03	12.1
2012	9,908.5	- 2,392.9	- 2849.3	80.54	77.7	- 19.5	- 22.3	-
2013	13,772.81	1471.5	3,864.3	111.9	138.9	12	39	9.9
2014	14,902.18	2,600.9	1,129.4	121.1	108.2	21.1	8.2	13.7
AVERAGE	$\overline{N}$ = 12,146.4	$\overline{S}_{AB}$ = 260,08		$\overline{R}_C = \sqrt[11]{1,211.421}$ =1,019		$\overline{R}_S = \sqrt[11]{1,211.431}$ -1=0,019		X

However, for a better assessment of variation we calculate coefficient to adjust after linear line equation:

$$\bar{d} = \frac{12,322.04}{11} = 1,120.18 \quad (3)$$

$$\bar{y} = \frac{13,3610.5}{11} = 12,146.4 \quad (4)$$

$$\upsilon = (1,120.18 \div 1,2146.4) * 100 = 9.22\% \quad (5)$$

The coefficient of variation adjustment after a parabola of second degree:

$$\overline{d} = \frac{9{,}588.81}{11} = 871.71 \quad (6)$$

$$\upsilon = \left(871.71 \div 12{,}146.4\right) * 100 = 7.17\% \quad (7)$$

Comparing the results, we can say that global production in all categories in Moldova for the period 2004-2014 has progressed as second-degree variation.

Proceeding from this we can say that the model adjustment after a second degree parabola will play the best development trendof global agricultural production for the studied period, the trend by presenting a linear function more pessimistic forecast.

We will further develop the value of global agricultural production forecast for the period 2016-2020.

Based on trend and deviation of actual levels we calculate the relative mean errors for the two models of trend following formula:

The linear model: $\overline{\varepsilon_t} = \frac{1}{11} * 108.26 = 9.84\%$ (8)

The parable based on grade II: $\overline{\varepsilon_t} = \frac{1}{11} * 86.11 = 7.82\%$ (9)

According to the criterion of the relative error, the most appropriate model for forecasting agricultural production trend is the polynomial function after two, although the linear model confirms the same thing.

Of course, this trend provided that in agriculture will continue the modernization processes in all sectors through the purchase of agricultural machinery performance, installing new irrigation systems, use ofadvanced production technology, ICT, and not least the preparation and training of specialists in agriculture.

Table 3. The trend deviation of actual levels of global agricultural production in the period 2004-2014

Year	Global production (in comparable prices), lei million y	Trend levels of global production and actual deviations from trend							
		Linear trend				Trend after a parabola of second degree			
		$\overline{y}_{T=A+BT}$	$\lvert Y - \overline{y} \rvert$	$(Y - \overline{y})^2$	$\frac{\lvert Y - \overline{y} \rvert}{\overline{Y}} * 100\%$	$\overline{y}_{T=A+BT+CT^2}$	$\lvert Y - \overline{y} \rvert$	$(Y - \overline{y})^2$	$\frac{\lvert Y - \overline{y} \rvert}{\overline{Y}} * 100\%$
2004	12,301.3	11,339.9	961.4	924,289.96	7.81	12,446.04	144.74	20,949.7	1.17
2005	12,402.2	11,501	901.2	812,161.44	7.26	12,018.73	383.47	147,049.2	3.09
2006	12,266.7	11,662.35	604.35	365,238.92	4.92	11,544.65	722.05	521,356.2	5.88
2007	9,432.5	11,823.7	2,391.2	571,7837.4	25.35	11,323.55	1,888 05	356,4732.8	20.01
2008	12,460.3	11,985.05	475.25	225,862.56	3.81	11,255.43	1204.87	145,1711.7	9.66
2009	11,259.5	12,146.4	886.9	786,591.61	7.87	11,340.29	80.79	6,527.02	0.71
2010	12,146.7	12,307.75	161.05	25,937.1	1.32	11,698.13	448.57	201,215.04	3.69
2011	12,757.8	12,469.1	288.7	83,347.69	2.26	11,961.95	795.85	633,377.2	6.23
2012	9,908.5	12,630.45	2,721.95	740,9011.8	27.47	12,612.75	2,704.25	731,2968	27,29
2013	13,772.81	12,791.8	981.01	962,380.6	7.12	13,309.53	413.28	170,800.4	3.00
2014	14,902.18	12,953.15	1,949.03	379,8717.9	13.07	14,099.29	802.9	644,648.4	5.38
TOTAL	133,610.5	133,610.7	12,322.04	211,113.77	108.26	133,610.3	9,588.81	146,753.36	86.11

Increase agricultural output and increasing product competitiveness and farmers will not only be possible with financial support through public resources for government action both within the agricultural sector and outside it (Popa et al, 2015).

In this context, a major issue is financing alternatives sector in terms of limited budget resources: the current needs of manufacturing activity or the creation and strengthening competitive agricultural growth assumptions.

Financing the agricultural sector is one of the cornerstones of its dynamism and modernization of, as it was already said. However, although the development and effective management of a financing system, along with an effective investment policy, is one of the primary factors for the continued development of the agricultural sector, we cannot hold that only the high volume of financial resources will enable the agricultural sector recovery (Dinu et al, 2014).

Of course for sustainable development are extremely necessary financial measures, but no less important are a number of measures related to the management of agricultural enterprises, using modern technologies for processing and processing, and modern technology information communication sector agrarian (Timofti, 2015).

4. Conclusions

Based on this research, the following conclusions have been drawn:

Shift from interventionist policies (subsidies for the resumption of the annual cycle of production, market regulation policies of financial support for the stabilization thereof etc.) to the structural supporting training and efficient operation of agricultural enterprises through market mechanisms, develop the institutional framework and infrastructure necessary for the functioning of agricultural markets (Timofti, 2015).

Develop a computerized database at national level for agricultural enterprises that have received funding from various sources. This database will enable potential investors, banks or government programs to obtain information about the ability of agricultural enterprises and their level of development, investments, their sources and effects achieved.

Develop an efficient management of grant schemes or fund grants, either from government programs. Both database and management system must become technical tools that will contribute to the efficient use of resources from the state budget or through various international financing programs. The prospect of opening access to European funds Moldovan agriculture these two instruments are indispensable to manage such funds (Timofti, 2013).

Streamlining of government policies designed to support all types of instruments (tax, legal, financial) to attract major investment in agriculture. This is indispensable as far as competitiveness is based on agriculture farmer's easy access to financing.

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